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Review Article

Development of a Self-Report Questionnaire for Patients and their Families to Prevent Faecal Incontinence in Daily Life

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Abstract

Background: This study aimed to develop a new self-report questionnaire to easily and quickly evaluate the occurrence of faecal incontinence (FI) due to functional gastrointestinal disorders (FGIDs). FGID symptoms are caused by dysfunction and do not involve organic lesions on clinical examinations. The diagnosis of FI is based on the following Roman IV criterion: "relapsed and uncontrolled stool leakage that lasts more than 3 months". FI is common in FGID patients and has a substantial adverse effect on daily life. This new questionnaire should allow patients and their families to easily and quickly evaluate FI to help reduce its impact on daily life.

Summary: Recording the patient's general condition, including defecation and eating habits, and performing voluntary rehabilitation are essential. This review indicated that drafting a new self-report questionnaire would allow patients and their families to identify episodes of FI easily and quickly. In conclusion, the new questionnaire may provide education and advice regarding the patient's daily defecation habits. Preventing FI may reduce the burden on family members and caregivers. This study provided a more accurate questionnaire to identify and manage FI.

Keywords: Constipation; Diarrhoea; Faecal Incontinence; Functional Gastrointestinal Disorders; Rome IV

Introduction

Functional gastrointestinal disorders (FGIDs) are chronic or recurrent persistent gastrointestinal symptoms that do not show organic lesions on laboratory tests and are caused by dysfunction [1]. The types of FGIDs include irritable bowel syndrome, functional abdominal distension, functional constipation, functional diarrhoea, and unspecified functional bowel disease [1-4]. Their typical gastrointestinal symptoms include abdominal pain, abdominal discomfort, and abnormal bowel movements [2,3]. The Rome IV diagnostic criteria are used to diagnose FGIDs. According to these criteria, faecal incontinence is defined as "relapsed defecation lasting more than 3 months and uncontrolled stool leakage" [2,3]. Faecal incontinence associated with FGIDs can have a significant negative impact on daily life and reduce the patient's quality of life.

Faecal incontinence has no academic definition that is used in epidemiological investigations or any indications for treatment in Japan, but it is defined by several international societies. The International Consultation on Incontinence (ICI) defines anal incontinence and faecal incontinence separately [5,6]. Anal incontinence is defined as "the involuntary loss of flatus, liquid or solid stool that is a social or hygienic problem". This can be regarded as a type of faecal incontinence that needs to be treated. Faecal incontinence is defined as "the involuntary loss of liquid or solid stool that is a social or hygienic problem". It defines faecal incontinence as anal incontinence minus gas incontinence. The American Society of Colon and Rectal Surgeons (ASCRS) defines faecal incontinence as "the uncontrolled passage of faeces or gas that has been present for at least one month in duration and in an

individual of at least four years of age, who had previously achieved control" [7-9]. The American College of Gastroenterology (ACG) defines faecal incontinence as "either the involuntary passage or the inability to control the discharge of faecal matter through the anus" [10]. Even though the above definitions differ somewhat, as an international consensus, ours does not distinguish faecal incontinence from gas incontinence, and our description includes age and the duration of illness. In this study, after reviewing previous studies, I defined faecal incontinence as "stool leaking from the anus unconsciously or against one's will". Faecal incontinence significantly impacts the daily life of patients and can lower their quality of life.

A daily preventive measure to avoid stool incontinence is needed. In recent years, many specific questionnaires have been developed [11,12]. Specifically, there are the Cleveland Clinic Florida Faecal Incontinence questionnaire [11], St. Mark's incontinence score (Vaizey score) [12], and evaluation scores such as the Faecal Incontinence Severity Index (FISI) [13]. If the emphasis is on the feeling of convenience in daily life, St. Mark's score is more suitable than the Cleveland Clinic Florida Fecal Incontinence questionnaire. Patients receiving home medical care should consider whether such a questionnaire can be used in that situation.

Materials and Methods

The purpose of this study was to draft a self-report questionnaire that could accurately evaluate faecal incontinence. Its contents were chosen by reviewing the literature on faecal incontinence. The eligible academic papers were published from 1975 to 2020, and their content had to be based on the scientific consensuses of international conferences. We searched for published academic papers on PubMed containing the keywords "Functional Gastrointestinal Disorders (FGIDs)", "Anal Incontinence", "Faecal Incontinence", and "Defecation Disorder". This literature was then collected and evaluated. To avoid bias in the literature search, no restrictions on dates, research designs, or patient ages were set.

Results

Mechanism and Pathophysiology of Faecal Incontinence

The pathophysiology and causes of faecal incontinence are not uniform, and it is thought that various factors are involved, which can depend on the individual patient. Even if one factor is causative, the patient may not show incontinence if another factor compensates for it. Specifically, the various factors involved include anal sphincter insufficiency, reservoir dysfunction due to decreased rectal sensation, volume, compliance, stool properties, abnormalities in the nerves innervating the rectum and anus, cognitive impairment and central nervous system disease that cause stool retention see in (Table 1) [11-15].

■ **Diseases and physical conditions that affect changes in intestinal motility include the following:** Diarrhoea, constipation, enterocolitis, irritable bowel syndrome, diabetes, cholecystectomy, etc.
■ **Diseases and physical conditions that affect rectal-anal sensory function include the following:** Nerve hyperextension due to delivery, spinal nerve disease or injury, chronic constipation, anal malformation or surgery, diabetes, dementia, etc.
■ **Diseases and physical conditions that cause abnormalities in the anal sphincter function include the following:** Anal sphincter injury due to delivery, anal surgery, trauma, spinal nerve disease, ageing, etc.
■ **Diseases and physical conditions that cause changes in rectal capacity and extensibility include the following:** Rectal anal cancer, radiation therapy history, inflammatory bowel disease, postoperative pelvic cavity surgery, chronic extension of the rectum due to constipation, etc.
■ **Diseases and physical conditions that reduce the ability to expel stool include the following:** Body movement restriction due to cerebral infarction, general muscle weakness due to ageing, dementia, etc.
■ **Other causes include the following:** Haemorrhoids, anal fistula, rectal prolapse, rectal stacking, faecal embolism, and the actions and side effects of various medications

Table 1: Understanding the conditions in which patients are prone to faecal incontinence.

Do Patients and their Families Understand the Characteristics of Faecal Incontinence?

There are many causes of faecal incontinence. We reviewed many previous studies and considered ways to assess them. There are two main methods. The first is the examination and evaluation of areas such as the anal rectum and perineum [16-22]. These tests require a medical examination by a medical specialist after visiting a medical institution. Medical personnel examine the condition and appearance of the perineal anus (visual inspection, palpation, etc.), the surrounding skin, the contractility of the anal sphincter, and, if the patient is a woman, the effects after delivery. This can be embarrassing and painful for the patient.

The second method is to evaluate faecal incontinence using a questionnaire to assess symptoms and quality of life (QOL). Although the questionnaire is less invasive than clinical examination, most questionnaires assessing faecal incontinence have been designed for medical professionals, such as questionnaires on the rectal anus [23-26]. These are difficult to score for anyone other than a medical professional and likely not appropriate questionnaires for patients and their families. Questionnaires may also assess the symptoms of faecal incontinence and quality of life [17,18,27-38]. For example, there are evaluation scores such as the Cleveland Clinic Florida Fecal Incontinence questionnaire [20], St. Mark's score (Vaizey Score) [21], and the Faecal Incontinence Severity Index (FISI) [18]. If the emphasis is on convenience in daily life, the St. Mark's score is more suitable than the Cleveland Clinic Florida Incontinence questionnaire. If the patient is receiving home care, the patient and family need to understand the contents of the questionnaire and consider whether it can be used in case of urgency. These questionnaires are well-established methods of assessing the severity of faecal incontinence and accessible by the general public, but they represent only the most basic treatment for faecal incontinence. A necessary step is to understand and eliminate the factors causing incontinence. It is of utmost importance to accurately understand the circumstances and factors that cause faecal incontinence in patients and their families. A simple and quick self-assessment for the patient and her family will help prevent faecal incontinence in home-care patients and can be expected to improve their quality of life.

The purpose of this study was to consolidate previous findings to draft a simple, quick, and widely understandable (by laypeople) questionnaire that can be administered before the patient becomes incontinent. It is essential to use it to understand the patient's defecation habits. The daily defecation habits and the onset of faecal incontinence are related; thus, assessing the patient's daily defecation habits and eating habits via data collected in this questionnaire can facilitate understanding by the patient and their family. However, many of the questionnaires and their terminology are meant for medical professionals, so it is necessary to verify whether a questionnaire's items are fully comprehensible to assess new faecal incontinence cases. The present study is based primarily on the international consensus content reported in previous studies [10,39,40]. We hope this questionnaire will be useful to both patients suffering from faecal incontinence and their families see in (Table 2).

■ Draft questionnaire items on daily defecation habits	
	• How were the patient's previous bowel movements? • When and how have they changed? • When and how much oral medicines such as diarrhoea medications, enemas, intestinal lavage, suppositories, etc. have been used? • Do you have normal stools (as described by the Bristol stool property scale)? • Do you go excessively when you defecate, and if so, how long does it take? • Can you distinguish between stool and gas or between liquid and solid stool? • Do you feel abdominal pain or bloating before defecation? • Is it necessary to use your fingers or hands to defecate? • Can your anus be wiped clean after defecation? • How active is your daily life?
■ Draft questionnaire items on faecal incontinence	
	• Are you aware of any faecal leaking, or is your faecal incontinence unbearable? • How often do you experience leakage of gas, mucus, liquid stool, or solid stool from your rectum? • Can you defecate, and if so, how long can you defecate? • Is your flatulence unbearable, and if so, how long is it bearable? • When did the first instance of faecal incontinence occur, and how did this condition change over time? • How much material leaks, and what is its nature? • Have you experienced any changes in incontinence? • Do you defecate in your sleep? • Does leakage occur after defecation? • What is the impact of your faecal incontinence on your daily life? What kind of difficulties do you experience, and how often? • How often do you use sanitary equipment such as pads?
■ Draft questionnaire items on daily events that could cause or be associated with faecal incontinence	
	• Meal content and intake of luxury foods or beverages (coffee, alcohol, etc.) • Smoking history, changes in weight • Oral medications, including laxatives and psychotropic drugs • Daily living conditions (awakening, meals and defecation, sleep onset time, etc.) • Living environment, including toilet facilities

Table 2: Patients can use the self-report questionnaire to easily and quickly prevent faecal incontinence.

Discussion

Can the Drafted Self-report Questionnaire be an Easy and Quick Way to Assess Faecal Incontinence in Daily Life?

Diarrhoea causes urgent faecal incontinence, and chronic constipation with hard stools and diminished rectal sensation due to chronic rectal extension causes leaky faecal incontinence. Since there are large individual differences in the characteristics of defecation due to faecal incontinence, it is important for patients and their families to check their daily defecation habits and their changes. Therefore, by using this draft self-questioning, it is possible that anyone, even laypeople, can easily evaluate their symptoms and prevent faecal incontinence in advance. Patient stool characteristics can be assessed on the internationally used Bristol stool characteristics scale [40]. Symptoms of faecal incontinence are evaluated based on the time course and degree of faecal incontinence and on risk factors for the development of faecal incontinence.

Additionally, administering oral medications such as laxatives often causes faecal incontinence. Psychotropic drugs can act on intestinal motility and peripheral nerves to cause faecal incontinence [41]. Luxury coffee and alcohol affect intestinal motility and faecal properties, and smoking has been reported to cause urgency associated with the atrophy of the external anal sphincter [42]. Given their overall living environment and situation, such patients often need assistance.

Daily Life Changes May Prevent Faecal Incontinence

Daily life-habit support for patients with faecal incontinence includes dietary guidance, lifestyle guidance, and defecation habit guidance. Regarding dietary guidance, people should be instructed to refrain from ingesting caffeine, citrus fruits, spicy foods, and alcohol, which can soften the stool [43-45]. One randomised controlled trial (RCT) showed that dietary fibre supplements such as plantains reduce faecal incontinence by improving faecal properties [46-48]. Another RCT showed faecal incontinence

was improved by increasing dietary fibre in addition to taking antidiarrheal drugs such as loperamide hydrochloride [49]. On the other hand, in an RCT study of elderly stroke patients with weakened physical strength, instructing patients to make changes in their diet and water intake for the purpose of controlling defecation increased the number of normal defecations, and faecal incontinence did not occur. Other reports, however, indicated that faecal incontinence did not improve significantly [50].

Guidance on defecation habits is an important factor in the treatment of faecal incontinence. If the patient's rectal sensation is normal, they should be recommended to go to the bathroom promptly if they feel the urge to defecate. On the other hand, if rectal sensation is reduced, the patient's faecal incontinence can be significantly improved by systematically trying to defecate even if there is no desire to defecate [45,51-56]. That is, in patients with spinal cord disorders and elderly people, even if there is stool in the rectum due to decreased rectal sensation, the stool may continue to accumulate in the rectum without the patient feeling the urge to defecate, resulting in overflowing faecal incontinence. For such patients, defecation habit training, in which they form the habit of going to the toilet and trying to defecate twice a day (approximately 30 minutes after morning awakening and, subsequently, after dinner) may be effective. In addition, educational guidance and advice on defecation from nurses can improve patients' faecal incontinence and help their caregivers [45,52,56].

Conclusions

Refractory faecal incontinence is common in patients with functional gastrointestinal disorders. It has a significant adverse effect on their daily life and their quality of life. The patient's daily defecation habits are associated with the onset of faecal incontinence, and a self-report questionnaire that is easy for patients and their families to understand is needed. The patient and his or her family must understand the defecation habits and engage in preventive daily activities to avoid faecal incontinence. Widely used faecal incontinence questionnaires contain much content that can only be understood by medical professionals. It is important that patients understand their own defecation habits and take steps to improve their daily lives, including their eating habits. In this study, based on the results of various published studies, I drafted a new self-report questionnaire draft that allows the layperson to assess faecal incontinence easily and quickly at home. Therefore, I proposed a faecal incontinence self-report questionnaire that patients and their families can use easily and quickly at home.

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